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Polygala abyssinica R.Br. ex Fresen. (Polygalaceae): A new addition to the flora of Odisha, India

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ABSTRACT

Polygala abyssinica, an annual or perennial herb, reported here as a new record to the flora of Odisha, India from Bonai Forest Division, Odisha. The short description of this species including distribution and associate plants has been provided along with colour photographs for easy identification in the field.

Keywords: Polygalaceae, *Polygala*, new record, Bonai Forest Division

1. INTRODUCTION

Odisha state is one of the major parts of Eastern Ghats enjoys diverse, rare and endemic flora and fauna due to the widespread landscapes, soil types, variety of vegetation and micro climatic conditions (Mishra and Kumar 2021; Mishra et al. 2021). *Polygala* is the highly diverse morphological genus having strongly zygomorphic flowers, resembling the flowers of Fabaceae (Paiva and Dias 1989; Sarvi et al. 2021). The genus *Polygala* L. (Polygalaceae) comprises of about 700 species distributed throughout the world except New Zealand, Polynesia and Arctic zone (Eriksen and Persson 2007; Castro et al. 2009; Lyskov et al. 2019). They are mostly distributed in Tropical regions. The genus represented in Odisha by about 7 species, unevenly distributed throughout the state (*P. arvensis*, *P. crotalarioides*, *P. elongata*, *P. erioptera*, *P. frucata*, *P. longifolia* and *P. persicariifolia*) (Saxena and Brahmam 1995). During survey on Biodiversity assessment at Koira Range, Bonai Forest Division, Odisha on 13th October 2021, authors collected a species from the genus *Polygala* L. (21° 57' 08" latitude, 85° 08' 50" longitude, 406.71 m elevation). The flowers were dissected and detailed morphological observations were carried out based on living specimens and field characterization are noted down using Field data Book. After morphological characterization, critical study with all available literature and Herbarium specimens, authors confirmed it as *Polygala abyssinica* as a new record for Odisha state. *Polygala abyssinica* is native to Africa, Afghanistan and Himalayan regions (from Kashmir to Nepal at altitudes of 1300-2700 m).

2. MATERIALS AND METHODS

The collected specimen is identified by Authors through the critical analysis of morphological characters (Plate 1). One herbarium (APRFH- 63) was made and deposited in the Biodiversity and Conservation Lab., Ambika Prasad Research Foundation, Odisha.

3. RESULTS

Taxonomic Treatment

Polygala abyssinica R.Br. ex Fresen. in Mus. Senck. 2:273. 1837; *Polygala adoensis* Hochst.ex A. Rich.; *Polygala cernua* Eckl. & Zeyh.; *Polygala gerardiana* Wall. ex Hassk.; *Polygala pedunculata* Harv.; *Polygala scabra* Edgew.

Description:

Perennial herb, 20-45 cm tall. Stems erect, branched from the woody base, striate, sparsely pubescent to glabrous. Leaves alternate, 3-4 cm long, 0.3-0.5 cm broad, recurved, shortly petiolate, 0.5-1 mm. Lower leaves are smaller, obovate or oblong; upper leaves linear or linear-lance shaped. Flowers purple or pinkish, borne in lax, 2-3 cm long racemes at branch-ends; rachis sparsely pubescent to glabrous; bracts linear, 1.5-3 mm long, caducous; bracteoles linear, 1-1.5 mm long, caducous; pedicels 2.5-3.5 mm, glabrous. Sepals are persistent, hairless; outer sepals unequal, narrowly hyaline margined; inner sepals obovate, 4-4.5 mm long, 3-3.5 mm broad, slightly oblique, enlarged in fruit, 3-nerved. Upper petals oblong-elliptic to spatulate, 3.5-4 mm long. Stamens 8. Capsules are obovate, notched, 3-4 mm long, 2-2.5 mm broad, wing 0.5 mm. Seeds ellipsoid, 4-4.5 mm, with dense white, silky hairs; 0.3-0.5 mm long, with almost inconspicuous appendages, 0.1-0.2 mm long.



Plate 1: Vegetative parts of *Polygala abyssinica* A) Whole plant, B) Flowers, C) Inflorescence, D) Dorsal part of leaf, E) Ventral part of leaf

Specimen examined:

India, Odisha, Bonai, Koira, 21° 57' 08" N, 85° 08' 50" E, 406.71 m, 13th October 2021, Sanjeet Kumar 0063.

Phenology:

Flowering: March- October

Ecology:

In grassland and woodland

Associate species:

Mitreola petiolata (J.F.Gmel.) Torr. & A.Gray, *Uraria lagopodoides* (L.) DC., *Crotalaria spectabilis* Roth., *Eclipta prostrata* (L.) L., *Elephantopus scaber* L. etc.

Distribution:

Jammu & Kashmir, Himachal Pradesh, Punjab, Uttar Pradesh, Madhya Pradesh, Rajasthan and Odisha.

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Ethical approval

The ethical guidelines for plants & plant materials are followed in the study for species collection & identification.

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Conflicts of interest:

The authors declare no conflict of interest.

Data and materials availability

All data associated with this study are present in the paper.

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